

(19)



JAPANESE PATENT OFFICE

PATENT ABSTRACTS OF JAPAN

(11)Publication number: **09027315 A**(43)Date of publication of application: **28.01.97**

(51)Int. Cl **H01M 4/02**
H01M 4/58
H01M 4/62
H01M 10/40

(21)Application number: **07176088**(22)Date of filing: **12.07.95**(71)Applicant: **HITACHI LTD**

(72)Inventor: **TAKEUCHI SEIJI**
HONBOU HIDETOSHI
NISHIMURA KATSUNORI
YAMAGATA TAKEO
HORIBA TATSUO
MURANAKA TADASHI

(54)NONAQUEOUS SECONDARY BATTERY**(57)Abstract:**

PROBLEM TO BE SOLVED: To provide a nonaqueous secondary battery having an energy density of 320-385wh/l by reducing the irreversible capacity of a lithium ion in a carbon material negative electrode for a lithium secondary battery, increasing capacity and lengthening life.

SOLUTION: A nonaqueous secondary battery has a positive electrode, a separator, a negative electrode,

and an electrolyte, the negative electrode comprises a current collector and a mix layer formed on the current collector, the mix layer comprises carbon fibers and carbon particles, and content of carbon fibers is 50-85wt%. The negative electrode is constituted with combining fine carbon fibers and carbon powder, and pore diameter, pore volume, porosity, and the thickness of the mix layer are controlled to reduce the irreversible capacity of a lithium ion.

COPYRIGHT: (C)1997,JPO